

SEQUENCE LISTING

<110> Wyeth Holdings Corporation

<120> METHODS FOR INCREASING NEISSERIA PROTEIN EXPRESSION AND COMPOSITIONS THEREOF

<130> AM100238

<160> 83

<170> PatentIn version 3.2

<210> 1

<211> 1110

<212> DNA

<213> Neisseria meningitidis (group B)

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caaaacagca agtccgccta tacgcccgtc cattttgttc agaataagca aaatcagcgg 540
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aattacaaaa atggcggtt tgccggaaac tatgccttta aatacgcgaa acacgccaat 660
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<213> Neisseria meningitidis (group B)

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20 25 30

Leu Tyr Val Ala Leu Gly Leu Gly Leu Tyr Ala Arg Gly Ala Ser Asn
35 40 45

Ile Leu Glu Gly Leu Asn Leu Glu Gly Leu Asn Leu Glu Thr His Arg
50 55 60

Gly Leu Pro Arg Leu Glu Pro Arg Ala Ser Asn Ile Leu Glu Gly Leu
65 70 75 80

Asn Pro Arg Gly Leu Asn Val Ala Leu Thr His Arg Leu Tyr Ser Ala
85 90 95

Arg Gly Leu Tyr Ser Ser Glu Arg Ala Arg Gly Ile Leu Glu Ala Arg
100 105 110

Gly Thr His Arg Leu Tyr Ser Ile Leu Glu Ser Glu Arg Ala Ser Pro
115 120 125

Pro His Glu Gly Leu Tyr Ser Glu Arg Pro His Glu Ile Leu Glu Gly
130 135 140

Leu Tyr Pro His Glu Leu Tyr Ser Gly Leu Tyr Ser Glu Arg Gly Leu
145 150 155 160

Ala Ser Pro Leu Glu Gly Leu Tyr Gly Leu Gly Leu Tyr Leu Glu Leu
165 170 175

Tyr Ser Ala Leu Ala Val Ala Leu Thr Arg Pro Gly Leu Asn Leu Glu
180 185 190

Gly Leu Gly Leu Asn Ala Ser Pro Val Ala Leu Ser Glu Arg Val Ala
195 200 205

Leu Ala Leu Ala Gly Leu Tyr Gly Leu Tyr Gly Leu Tyr Ala Leu Ala
210 215 220

Ser Glu Arg Gly Leu Asn Thr Arg Pro Gly Leu Tyr Ala Ser Asn Ala
225 230 235 240

Arg Gly Gly Leu Ser Glu Arg Pro His Glu Ile Leu Glu Gly Leu Tyr
245 250 255

Leu Glu Ala Leu Ala Gly Leu Tyr Gly Leu Pro His Glu Gly Leu Tyr
260 265 270

Thr His Arg Leu Glu Ala Arg Gly Ala Leu Ala Gly Leu Tyr Ala Arg
275 280 285

Gly Val Ala Leu Ala Leu Ala Ala Ser Asn Gly Leu Asn Pro His Glu
290 295 300

Ala Ser Pro Ala Ser Pro Ala Leu Ala Ser Glu Arg Gly Leu Asn Ala
305 310 315 320

Leu Ala Ile Leu Glu Ala Ser Pro Pro Arg Thr Arg Pro Ala Ser Pro
325 330 335

Ser Glu Arg Ala Ser Asn Ala Ser Asn Ala Ser Pro Val Ala Leu Ala
340 345 350

Leu Ala Ser Glu Arg Gly Leu Asn Leu Glu Gly Leu Tyr Ile Leu Glu
355 360 365

Pro His Glu Leu Tyr Ser Ala Arg Gly His Ile Ser Ala Ser Pro Ala
370 375 380

Ser Pro Met Glu Thr Ser Glu Arg Val Ala Leu Ser Glu Arg Val Ala
385 390 395 400

Leu Ala Arg Gly Thr Tyr Arg Ala Ser Pro Ser Glu Arg Pro Arg Gly
405 410 415

Leu Pro His Glu Ser Glu Arg Gly Leu Tyr Pro His Glu Ser Glu Arg
420 425 430

Gly Leu Tyr Ser Glu Arg Val Ala Leu Gly Leu Asn Pro His Glu Val

435

440

445

Ala Leu Pro Arg Ala Leu Ala Gly Leu Asn Ala Ser Asn Ser Glu Arg
450 455 460

Leu Tyr Ser Ser Glu Arg Ala Leu Ala Thr Tyr Arg Thr His Arg Pro
465 470 475 480

Arg Ala Leu Ala His Ile Ser Pro His Glu Val Ala Leu Gly Leu Asn
485 490 495

Ala Ser Asn Leu Tyr Ser Gly Leu Asn Ala Ser Asn Gly Leu Asn Ala
500 505 510

Arg Gly Pro Arg Thr His Arg Leu Glu Val Ala Leu Pro Arg Ala Leu
515 520 525

Ala Val Ala Leu Val Ala Leu Gly Leu Tyr Leu Tyr Ser Pro Arg Gly
530 535 540

Leu Tyr Ser Glu Arg Ala Ser Pro Val Ala Leu Thr Tyr Arg Thr Tyr
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Arg Ala Leu Ala Gly Leu Tyr Leu Glu Ala Ser Asn Thr Tyr Arg Leu
565 570 575

Tyr Ser Ala Ser Asn Gly Leu Tyr Gly Leu Tyr Pro His Glu Ala Leu
580 585 590

Ala Gly Leu Tyr Ala Ser Asn Thr Tyr Arg Ala Leu Ala Pro His Glu
595 600 605

Leu Tyr Ser Thr Tyr Arg Ala Leu Ala Leu Tyr Ser His Ile Ser Ala
610 615 620

Leu Ala Ala Ser Asn Val Ala Leu Gly Leu Tyr Ala Arg Gly Ala Ser
625 630 635 640

Pro Ala Leu Ala Pro His Glu Gly Leu Leu Glu Pro His Glu Leu Glu
645 650 655

Ile Leu Glu Gly Leu Tyr Ser Glu Arg Ala Leu Ala Thr His Arg Ser
660 665 670

Glu Arg Ala Ser Pro Gly Leu Ala Leu Ala Leu Tyr Ser Gly Leu Tyr
675 680 685

Thr His Arg Ala Ser Pro Pro Arg Leu Glu Leu Tyr Ser Ala Ser Asn
690 695 700 705

His Ile Ser Gly Leu Asn Val Ala Leu His Ile Ser Ala Arg Gly Leu
705 710 715 720

Glu Thr His Arg Gly Leu Tyr Gly Leu Tyr Thr Tyr Arg Gly Leu Gly
725 730 735

Leu Gly Leu Tyr Gly Leu Tyr Leu Glu Ala Ser Asn Leu Glu Ala Leu
740 745 750

Ala Leu Glu Ala Leu Ala Ala Leu Ala Gly Leu Asn Leu Glu Ala Ser
755 760 765

Pro Leu Glu Ser Glu Arg Gly Leu Ala Ser Asn Gly Leu Tyr Ala Ser
770 775 780

Pro Leu Tyr Ser Ala Leu Ala Leu Tyr Ser Thr His Arg Leu Tyr Ser
785 790 795 800

Ala Ser Asn Ser Glu Arg Thr His Arg Thr His Arg Gly Leu Ile Leu
805 810 815

Glu Ala Leu Ala Ala Leu Ala Thr His Arg Ala Leu Ala Ser Glu Arg
820 825 830

Thr Tyr Arg Ala Arg Gly Pro His Glu Gly Leu Tyr Ala Ser Asn Ala
835 840 845

Leu Ala Val Ala Leu Pro Arg Ala Arg Gly Ile Leu Glu Ser Glu Arg
850 855 860

Thr Tyr Arg Ala Leu Ala His Ile Ser Gly Leu Tyr Pro His Glu Ala
865 870 875 880

Ser Pro Leu Glu Ile Leu Glu Gly Leu Ala Arg Gly Gly Leu Tyr Leu
885 890 895

Tyr Ser Leu Tyr Ser Gly Leu Tyr Gly Leu Ala Ser Asn Thr His Arg

900	905	910				
Ser Glu Arg Thr Tyr Arg Ala Ser Pro Gly Leu Asn Ile Leu Glu Ile						
915	920	925				
Leu Glu Ala Leu Ala Gly Leu Tyr Val Ala Leu Ala Ser Pro Thr Tyr						
930	935	940				
Arg Ala Ser Pro Pro His Glu Ser Glu Arg Leu Tyr Ser Ala Arg Gly						
945	950	955				
Thr His Arg Ser Glu Arg Ala Leu Ala Ile Leu Glu Val Ala Leu Ser						
965	970	975				
Glu Arg Gly Leu Tyr Ala Leu Ala Thr Arg Pro Leu Glu Leu Tyr Ser						
980	985	990				
Ala Arg Gly Ala Ser Asn Thr His Arg Gly Leu Tyr Ile Leu Glu Gly						
995	1000	1005				
Leu Tyr Ala Ser Asn Thr Tyr Arg Thr His Arg Gly Leu Asn Ile						
1010	1015	1020				
Leu Glu Ala Ser Asn Ala Leu Ala Ala Leu Ala Ser Glu Arg Val						
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<212> DNA						
<213> Neisseria meningitidis (group B)						
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cgcgcggcc	gcgttgcgaa	tcagttgac	gatgccagca	aaggcattga	tccttggac	360
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cagcctactc	tcgttccggc	tgttgtcggc	aagccgggtt	cggatgtgta	ttatgccggt	600
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aacagttacga	ccgaaattgc	cgccactgct	tcctaccgct	tcggtaatgc	agttccacgc	900
atcagctatg	cccatggttt	cgactttatc	gaacgcggta	aaaaaggcga	aaataccagc	960
tcgatcaaa	tcatgcggg	cggttattat	gattttcca	aacgcacttc	cgccatcggt	1020
tctggcgctt	ggctgaaacg	caataccggc	atcggcaact	acactcaaata	taatgccgccc	1080
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<211> 1050

<212> PRT

<213> Neisseria meningitidis (group B)

<400> 4

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Arg Gly Leu Tyr Gly Leu Ile Leu Glu Leu Tyr Ser Ala Leu Ala Gly
 20 25 30

Leu Tyr Val Ala Leu Gly Leu Gly Leu Tyr Ala Arg Gly Ala Ser Asn
 35 40 45

Ile Leu Glu Gly Leu Asn Leu Glu Gly Leu Asn Leu Glu Thr His Arg
 50 55 60

Gly Leu Pro Arg Leu Glu Gly Leu Asn Ala Ser Asn Ile Leu Glu Gly
 65 70 75 80

Leu Asn Gly Leu Asn Pro Arg Gly Leu Asn Val Ala Leu Thr His Arg

85

90

95

Leu Tyr Ser Ala Arg Gly Leu Tyr Ser Ser Glu Arg Ala Arg Gly Ile
100 105 110

Leu Glu Ala Arg Gly Thr His Arg Leu Tyr Ser Ile Leu Glu Ser Glu
115 120 125

Arg Ala Ser Pro Pro His Glu Gly Leu Tyr Ser Glu Arg Pro His Glu
130 135 140

Ile Leu Glu Gly Leu Tyr Pro His Glu Leu Tyr Ser Gly Leu Tyr Ser
145 150 155 160

Glu Arg Gly Leu Ala Ser Pro Leu Glu Gly Leu Tyr Gly Leu Gly Leu
165 170 175

Tyr Leu Glu Leu Tyr Ser Ala Leu Ala Val Ala Leu Thr Arg Pro Gly
180 185 190

Leu Asn Leu Glu Gly Leu Gly Leu Asn Ala Ser Pro Val Ala Leu Ser
195 200 205

Glu Arg Val Ala Leu Ala Leu Ala Gly Leu Tyr Gly Leu Tyr Gly Leu
210 215 220

Tyr Ala Leu Ala Thr His Arg Ala Arg Gly Thr Arg Pro Gly Leu Tyr
225 230 235 240

Ala Ser Asn Ala Arg Gly Gly Leu Ser Glu Arg Pro His Glu Val Ala
245 250 255

Leu Gly Leu Tyr Leu Glu Ala Leu Ala Gly Leu Tyr Gly Leu Pro His
260 265 270

Glu Gly Leu Tyr Thr His Arg Leu Glu Ala Arg Gly Ala Leu Ala Gly
275 280 285

Leu Tyr Ala Arg Gly Val Ala Leu Ala Leu Ala Ala Ser Asn Gly Leu
290 295 300

Asn Pro His Glu Ala Ser Pro Ala Ser Pro Ala Leu Ala Ser Glu Arg
305 310 315 320

Leu Tyr Ser Ala Leu Ala Ile Leu Glu Ala Ser Pro Pro Arg Thr Arg
325 330 335

Pro Ala Ser Pro Ser Glu Arg Ala Ser Asn Ala Ser Asn Val Ala Leu
340 345 350

Val Ala Leu Ala Leu Ala Ser Glu Arg Gly Leu Asn Leu Glu Gly Leu
355 360 365

Tyr Ile Leu Glu Pro His Glu Leu Tyr Ser Ala Arg Gly His Ile Ser
370 375 380

Ala Ser Pro Ala Ser Pro Met Glu Thr Pro Arg Val Ala Leu Ser Glu
385 390 395 400

Arg Val Ala Leu Ala Arg Gly Thr Tyr Arg Ala Ser Pro Ser Glu Arg
405 410 415

Pro Arg Gly Leu Pro His Glu Ser Glu Arg Gly Leu Tyr Pro His Glu
420 425 430

Ser Glu Arg Gly Leu Tyr Ser Glu Arg Val Ala Leu Gly Leu Asn Pro
435 440 445

His Glu Val Ala Leu Pro Arg Ala Leu Ala Gly Leu Asn Ala Ser Asn
450 455 460

Ser Glu Arg Leu Tyr Ser Ser Glu Arg Ala Leu Ala Thr Tyr Arg Thr
465 470 475 480

His Arg Pro Arg Ala Leu Ala His Ile Ser Pro His Glu Val Ala Leu
485 490 495

Gly Leu Asn Gly Leu Asn Thr His Arg Pro Arg Gly Leu Asn Ser Glu
500 505 510

Arg Gly Leu Asn Pro Arg Thr His Arg Leu Glu Val Ala Leu Pro Arg
515 520 525

Ala Leu Ala Val Ala Leu Val Ala Leu Gly Leu Tyr Leu Tyr Ser Pro
530 535 540

Arg Gly Leu Tyr Ser Glu Arg Ala Ser Pro Val Ala Leu Thr Tyr Arg

545

550

555

560

Thr Tyr Arg Ala Leu Ala Gly Leu Tyr Leu Glu Ala Ser Asn Thr Tyr
565 570 575

Arg Leu Tyr Ser Ala Ser Asn Gly Leu Tyr Gly Leu Tyr Pro His Glu
580 585 590

Ala Leu Ala Gly Leu Tyr Ala Ser Asn Thr Tyr Arg Ala Leu Ala Pro
595 600 605

His Glu Leu Tyr Ser Thr Tyr Arg Ala Leu Ala Leu Tyr Ser His Ile
610 615 620

Ser Ala Leu Ala Ala Ser Asn Val Ala Leu Gly Leu Tyr Ala Arg Gly
625 630 635 640

Ala Ser Pro Ala Leu Ala Pro His Glu Gly Leu Leu Glu Pro His Glu
645 650 655

Leu Glu Leu Glu Gly Leu Tyr Ser Glu Arg Gly Leu Tyr Ser Glu Arg
660 665 670

Ala Ser Pro Gly Leu Ala Leu Ala Leu Tyr Ser Gly Leu Tyr Thr His
675 680 685

Arg Ala Ser Pro Pro Arg Leu Glu Leu Tyr Ser Ala Ser Asn His Ile
690 695 700

Ser Gly Leu Asn Val Ala Leu His Ile Ser Ala Arg Gly Leu Glu Thr
705 710 715 720

His Arg Gly Leu Tyr Gly Leu Tyr Thr Tyr Arg Gly Leu Gly Leu Gly
725 730 735

Leu Tyr Gly Leu Tyr Leu Glu Ala Ser Asn Leu Glu Ala Leu Ala Leu
740 745 750

Glu Ala Leu Ala Ala Leu Ala Gly Leu Asn Leu Glu Ala Ser Pro Leu
755 760 765

Glu Ser Glu Arg Gly Leu Ala Ser Asn Ala Leu Ala Ala Ser Pro Leu
770 775 780

Tyr Ser Thr His Arg Leu Tyr Ser Ala Ser Asn Ser Glu Arg Thr His
785 790 795 800

Arg Thr His Arg Gly Leu Ile Leu Glu Ala Leu Ala Ala Leu Ala Thr
805 810 815

His Arg Ala Leu Ala Ser Glu Arg Thr Tyr Arg Ala Arg Gly Pro His
820 825 830

Glu Gly Leu Tyr Ala Ser Asn Ala Leu Ala Val Ala Leu Pro Arg Ala
835 840 845

Arg Gly Ile Leu Glu Ser Glu Arg Thr Tyr Arg Ala Leu Ala His Ile
850 855 860

Ser Gly Leu Tyr Pro His Glu Ala Ser Pro Pro His Glu Ile Leu Glu
865 870 875 880

Gly Leu Ala Arg Gly Gly Leu Tyr Leu Tyr Ser Leu Tyr Ser Gly Leu
885 890 895

Tyr Gly Leu Ala Ser Asn Thr His Arg Ser Glu Arg Thr Tyr Arg Ala
900 905 910

Ser Pro Gly Leu Asn Ile Leu Glu Ile Leu Glu Ala Leu Ala Gly Leu
915 920 925

Tyr Val Ala Leu Ala Ser Pro Thr Tyr Arg Ala Ser Pro Pro His Glu
930 935 940

Ser Glu Arg Leu Tyr Ser Ala Arg Gly Thr His Arg Ser Glu Arg Ala
945 950 955 960

Leu Ala Ile Leu Glu Val Ala Leu Ser Glu Arg Gly Leu Tyr Ala Leu
965 970 975

Ala Thr Arg Pro Leu Glu Leu Tyr Ser Ala Arg Gly Ala Ser Asn Thr
980 985 990

His Arg Gly Leu Tyr Ile Leu Glu Gly Leu Tyr Ala Ser Asn Thr Tyr
995 1000 1005

Arg Thr His Arg Gly Leu Asn Ile Leu Glu Ala Ser Asn Ala Leu

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Ala Arg Gly His Ile Ser Leu Tyr Ser Pro His Glu 1040 1045 1050			
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<212> PRT

<213> Neisseria meningitidis (group B)

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Ser Gly Gln Val Lys Val Thr Lys Val Thr Lys Ala Lys Ser Arg Ile
35 40 45

Arg Thr Lys Ile Ser Asp Phe Gly Ser Phe Ile Gly Phe Lys Gly Ser
50 55 60

Glu Asp Leu Gly Asp Gly Leu Lys Ala Val Trp Gln Leu Glu Gln Asp
65 70 75 80

Val Ser Val Ala Gly Gly Ala Thr Gln Trp Gly Asn Arg Glu Ser
85 90 95

Phe Ile Gly Leu Ala Gly Glu Phe Gly Thr Leu Arg Ala Gly Arg Val
100 105 110

Ala Asn Gln Phe Asp Asp Ala Ser Gln Ala Ile Asp Pro Trp Asp Ser
115 120 125

Asn Asn Asp Val Ala Ser Gln Leu Gly Ile Phe Lys Arg His Asp Asp
130 135 140

Met Pro Val Ser Val Arg Tyr Asp Ser Pro Glu Phe Ser Gly Phe Ser
145 150 155 160

Gly Ser Val Gln Phe Val Pro Ile Gln Asn Ser Lys Ser Ala Tyr Thr
165 170 175

Pro Ala Tyr Tyr Thr Lys Asp Thr Asn Asn Asn Leu Thr Leu Val Pro
180 185 190

Ala Val Val Gly Lys Pro Gly Ser Asp Val Tyr Tyr Ala Gly Leu Asn
195 200 205

Tyr Lys Asn Gly Gly Phe Ala Gly Asn Tyr Ala Phe Lys Tyr Ala Arg

210	215	220
His Ala Asn Val Gly Arg Asn Ala Phe Glu Leu Phe Leu Ile Gly Ser		
225	230	235
Gly Ser Asp Gln Ala Lys Gly Thr Asp Pro Leu Lys Asn His Gln Val		
245	250	255
His Arg Leu Thr Gly Gly Tyr Glu Glu Gly Gly Leu Asn Leu Ala Leu		
260	265	270
Ala Ala Gln Leu Asp Leu Ser Glu Asn Gly Asp Lys Thr Lys Asn Ser		
275	280	285
Thr Thr Glu Ile Ala Ala Thr Ala Ser Tyr Arg Phe Gly Asn Ala Val		
290	295	300
Pro Arg Ile Ser Tyr Ala His Gly Phe Asp Phe Ile Glu Arg Gly Lys		
305	310	315
Lys Gly Glu Asn Thr Ser Tyr Asp Gln Ile Ile Ala Gly Val Asp Tyr		
325	330	335
Asp Phe Ser Lys Arg Thr Ser Ala Ile Val Ser Gly Ala Trp Leu Lys		
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Arg Asn Thr Gly Ile Gly Asn Tyr Thr Gln Ile Asn Ala Ala Ser Val		
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Gly Leu Arg His Lys Phe		
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<210>	7					
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<213>	Neisseria meningitidis (group B)					
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aataccagct	acgatcaaata	catgcggcgc	gttgcattatg	attttccaa	acgcacttcc	1020
gccatcggt	ctggcgcttgc	gctgaaacgc	aataccggca	tcggcaacta	cactcaaatt	1080
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 <213> Neisseria meningitidis (group B)

<400> 8

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			20				25					30			

Ser	Gly	Gln	Val	Lys	Val	Thr	Lys	Ala	Lys	Ser	Arg	Ile	Arg	Thr	Lys
			35				40				45				

Ile	Ser	Asp	Phe	Gly	Ser	Phe	Ile	Gly	Phe	Lys	Gly	Ser	Glu	Asp	Leu
						55				60					

Gly	Glu	Gly	Leu	Lys	Ala	Val	Trp	Gln	Leu	Glu	Gln	Asp	Val	Ser	Val
			65			70			75			80			

Ala Gly Gly Gly Ala Thr Gln Trp Gly Asn Arg Glu Ser Phe Ile Gly

85

90

95

Leu Ala Gly Glu Phe Gly Thr Leu Arg Ala Gly Arg Val Ala Asn Gln
100 105 110

Phe Asp Asp Ala Ser Gln Ala Ile Asp Pro Trp Asp Ser Asn Asn Asp
115 120 125

Val Ala Ser Gln Leu Gly Ile Phe Lys Arg His Asp Asp Met Pro Val
130 135 140

Ser Val Arg Tyr Asp Ser Pro Asp Phe Ser Gly Phe Ser Gly Ser Val
145 150 155 160

Gln Phe Val Pro Ile Gln Asn Ser Lys Ser Ala Tyr Thr Pro Ala His
165 170 175

Val Val Val Asn Asn Lys Val Ala Thr His Val Pro Ala Val Val Gly
180 185 190

Lys Pro Gly Ser Asp Val Tyr Tyr Ala Gly Leu Asn Tyr Lys Asn Gly
195 200 205

Gly Phe Ala Gly Asn Tyr Ala Phe Lys Tyr Ala Arg His Ala Asn Val
210 215 220

Gly Arg Asn Ala Phe Glu Leu Phe Leu Ile Gly Ser Ala Thr Ser Asp
225 230 235 240

Gln Ala Lys Gly Thr Asp Pro Leu Lys Asn His Gln Val His Arg Leu
245 250 255

Thr Gly Gly Tyr Glu Glu Gly Gly Leu Asn Leu Ala Leu Ala Ala Gln
260 265 270

Leu Asp Leu Ser Glu Asn Ala Asp Lys Thr Lys Asn Ser Thr Thr Glu
275 280 285

Ile Ala Ala Thr Ala Ser Tyr Arg Phe Gly Asn Ala Val Pro Arg Ile
290 295 300

Ser Tyr Ala His Gly Phe Asp Leu Ile Glu Arg Gly Lys Lys Gly Glu
305 310 315 320

Asn Thr Ser Tyr Asp Gln Ile Ile Ala Gly Val Asp Tyr Asp Phe Ser
 325 330 335

Lys Arg Thr Ser Ala Ile Val Ser Gly Ala Trp Leu Lys Arg Asn Thr
 340 345 350

Gly Ile Gly Asn Tyr Thr Gln Ile Asn Ala Ala Ser Val Gly Leu Arg
 355 360 365

His Lys Phe
 370

<210>	9								
<211>	1107								
<212>	DNA								
<213>	Neisseria meningitidis (group B)								
<400>	9								
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cgcatcagga	cgaaaatcag	tgatttcggc	tcgtttatcg	gcttaaggg	gagtgaggat				120
ttgggcgaag	ggctgaaggc	tgttgtgcag	tttgagcaag	acgtatccgt	tgccggcggc				180
ggcgcgaccc	agtggggcaa	caggaaatcc	tttgcggct	tggcaggcga	attcggtacg				240
ctgcgcgccc	gtcgcgttgc	aatcagttt	gacgatgcca	gccaagccat	tgatccttgg				300
gacagcaaca	atgatgtggc	ttcgcaattt	ggtattttca	aacgccacga	cgatatgccc				360
gtttccgtac	gctacgactc	tccggacttt	tccggtttca	gcggcagcgt	ccaattcggt				420
ccgatccaaa	acagcaagtc	cgcctatacg	ccggctcatt	atactaggca	gaacaatgct				480
gatgtttcg	ttccggctgt	tgtcgcaag	ccggatcgg	atgtgttatta	tgccggctcg				540
aattacaaaa	atggcggtt	tgccggagc	tatgccttta	aatatgcgag	acacgccaat				600
gtcggacgtg	atgctttga	gttgttcttgc	ctcggcagca	cgagtgtatga	agccaaaggt				660
accgatccct	tgaaaaacca	tcaggtacac	cgcctgacgg	gcggctatga	ggaaggcggc				720
ttgaatctcg	ccttggcggc	tcagttggat	ttgtctgaaa	atggcgacaa	agccaaaacc				780
aaaaacagta	cgaccgaaat	tgccgccact	gcttcctacc	gcttcggtaa	tgcagttccg				840
cgcatcagct	atgcccattgg	tttcgacttg	atcgaacgcg	gtaaaaaaagg	cgaaaataacc				900
agctacgatc	aaatcatcgc	cggcgttgat	tatgattttt	ccaaacgcac	ttccgcccattc				960
gtgtctggcg	cttggctgaa	acgcaatacc	ggcatcgcca	actacactca	aattaatgcc				1020
									1080

gcctccgtcg gtttgcgcca caaattc 1107

<210> 10
<211> 369
<212> PRT
<213> Neisseria meningitidis (group B)

<400> 10

Met Asp Val Ser Leu Tyr Gly Glu Ile Lys Ala Gly Val Glu Gly Arg
1 5 10 15

Asn Phe Gln Leu Gln Leu Thr Glu Pro Pro Ser Lys Ser Gln Pro Gln
20 25 30

Val Lys Val Thr Lys Ala Lys Ser Arg Ile Arg Thr Lys Ile Ser Asp
35 40 45

Phe Gly Ser Phe Ile Gly Phe Lys Gly Ser Glu Asp Leu Gly Glu Gly
50 55 60

Leu Lys Ala Val Trp Gln Leu Glu Gln Asp Val Ser Val Ala Gly Gly
65 70 75 80

Gly Ala Thr Gln Trp Gly Asn Arg Glu Ser Phe Val Gly Leu Ala Gly
85 90 95

Glu Phe Gly Thr Leu Arg Ala Gly Arg Val Ala Asn Gln Phe Asp Asp
100 105 110

Ala Ser Gln Ala Ile Asp Pro Trp Asp Ser Asn Asn Asp Val Ala Ser
115 120 125

Gln Leu Gly Ile Phe Lys Arg His Asp Asp Met Pro Val Ser Val Arg
130 135 140

Tyr Asp Ser Pro Asp Phe Ser Gly Phe Ser Gly Ser Val Gln Phe Val
145 150 155 160

Pro Ile Gln Asn Ser Lys Ser Ala Tyr Thr Pro Ala His Tyr Thr Arg
165 170 175

Gln Asn Asn Ala Asp Val Phe Val Pro Ala Val Val Gly Lys Pro Gly
180 185 190

Ser Asp Val Tyr Tyr Ala Gly Leu Asn Tyr Lys Asn Gly Gly Phe Ala
195 200 205

Gly Ser Tyr Ala Phe Lys Tyr Ala Arg His Ala Asn Val Gly Arg Asp
210 215 220

Ala Phe Glu Leu Phe Leu Leu Gly Ser Thr Ser Asp Glu Ala Lys Gly
225 230 235 240

Thr Asp Pro Leu Lys Asn His Gln Val His Arg Leu Thr Gly Gly Tyr
245 250 255

Glu Glu Gly Gly Leu Asn Leu Ala Leu Ala Ala Gln Leu Asp Leu Ser
260 265 270

Glu Asn Gly Asp Lys Ala Lys Thr Lys Asn Ser Thr Thr Glu Ile Ala
275 280 285

Ala Thr Ala Ser Tyr Arg Phe Gly Asn Ala Val Pro Arg Ile Ser Tyr
290 295 300

Ala His Gly Phe Asp Leu Ile Glu Arg Gly Lys Lys Gly Glu Asn Thr
305 310 315 320

Ser Tyr Asp Gln Ile Ile Ala Gly Val Asp Tyr Asp Phe Ser Lys Arg
325 330 335

Thr Ser Ala Ile Val Ser Gly Ala Trp Leu Lys Arg Asn Thr Gly Ile
340 345 350

Gly Asn Tyr Thr Gln Ile Asn Ala Ala Ser Val Gly Leu Arg His Lys
355 360 365

Phe

<210> 11

<211> 1110

<212> DNA

<213> Neisseria meningitidis (group B)

<400> 11

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caatttgactg aacaaccctc aagaactcaa ggtcaaacga gcaatcaggt aaaagttaact 120

aaggccaaaa	gcccacatcg	gacgaaaatc	agtgattcg	gctcgtttat	cggctttaag	180
gggagcgagg	atttgggcga	aggctctgaag	gctgttgcc	agcttgagca	agacgtatcc	240
gttgccggcg	gcggcgac	ccgttgggc	aacaggaaat	ccttgcgg	cttggcaggc	300
gaattcggca	cgctgcgcgc	cggccgcgtt	gcgaatcagt	ttgacgatgc	cagcaaagcc	360
attgatcctt	gggacagcaa	taatgttgc	gcttcgcaat	tgggtatttt	caaacgccac	420
gacgatatgc	cggttccgt	acgctacgac	tctccggact	tttccggttt	cagcggcagc	480
gtccaattcg	ttccggctca	aaacagcaag	tccgcctata	agccggctta	tgtggatgag	540
aagaaaatgg	ttcatgcggc	tgttgcggc	aagcccgat	cggatgtgta	ttatgccggt	600
ctgaattaca	aaaatggcg	tttgcgggg	aactatgcct	ttaaatatgc	gaaacacgccc	660
aatgtggcc	gtgatgctt	taatttgc	ttgctggc	gcatcgccga	tgatgtgaa	720
gccaaaggta	ccgatccctt	aaaaaccat	caggtacacc	gcctgacggg	cggctatgag	780
gaaggcggct	tgaatctcgc	cttggcggct	cagttggatt	tgtctgaaaa	tggcgacaaa	840
accaaaaaca	gtacgaccga	aattgccc	actgcttcct	accgcttcgg	aatgcagtt	900
ccacgcac	gctatgccc	tggttcgac	tttacgaaac	gcggtaaaaa	aggcgaacat	960
accagctacg	atcaaatacat	cggccgcgtt	gattatgatt	tttccaaacg	cacttccgccc	1020
atcgtgtctg	gtgctggct	gaaacgcaat	accggcatcg	gcaactacac	tcaaattaat	1080
gcccctccg	tcggtttgcg	ccacaaattc				1110

<210> 12

<211> 370

<212> PRT

<213> Neisseria meningitidis (group B)

<400> 12

Met	Asp	Val	Ser	Leu	Tyr	Gly	Glu	Ile	Lys	Ala	Gly	Val	Glu	Gly	Arg
1				5				10					15		

Asn	Tyr	Gln	Leu	Gln	Leu	Thr	Glu	Gln	Pro	Ser	Arg	Thr	Gln	Gly	Gln
				20			25						30		

Thr	Ser	Asn	Gln	Val	Lys	Val	Thr	Lys	Ala	Lys	Ser	Arg	Ile	Arg	Thr
				35			40					45			

Lys	Ile	Ser	Asp	Phe	Gly	Ser	Phe	Ile	Gly	Phe	Lys	Gly	Ser	Glu	Asp
				50			55				60				

Leu Gly Glu Gly Leu Lys Ala Val Trp Gln Leu Glu Gln Asp Val Ser
65 70 75 80

Val Ala Gly Gly Gly Ala Thr Arg Trp Gly Asn Arg Glu Ser Phe Val
85 90 95

Gly Leu Ala Gly Glu Phe Gly Thr Leu Arg Ala Gly Arg Val Ala Asn
100 105 110

Gln Phe Asp Asp Ala Ser Lys Ala Ile Asp Pro Trp Asp Ser Asn Asn
115 120 125

Val Val Ala Ser Gln Leu Gly Ile Phe Lys Arg His Asp Asp Met Pro
130 135 140

Val Ser Val Arg Tyr Asp Ser Pro Asp Phe Ser Gly Phe Ser Gly Ser
145 150 155 160

Val Gln Phe Val Pro Ala Gln Asn Ser Lys Ser Ala Tyr Lys Pro Ala
165 170 175

Tyr Val Asp Glu Lys Lys Met Val His Ala Ala Val Val Gly Lys Pro
180 185 190

Gly Ser Asp Val Tyr Tyr Ala Gly Leu Asn Tyr Lys Asn Gly Gly Phe
195 200 205

Ala Gly Asn Tyr Ala Phe Lys Tyr Ala Lys His Ala Asn Val Gly Arg
210 215 220

Asp Ala Phe Asn Leu Phe Leu Leu Gly Arg Ile Gly Asp Asp Asp Glu
225 230 235 240

Ala Lys Gly Thr Asp Pro Leu Lys Asn His Gln Val His Arg Leu Thr
245 250 255

Gly Gly Tyr Glu Glu Gly Gly Leu Asn Leu Ala Leu Ala Ala Gln Leu
260 265 270

Asp Leu Ser Glu Asn Gly Asp Lys Thr Lys Asn Ser Thr Thr Glu Ile
275 280 285

Ala Ala Thr Ala Ser Tyr Arg Phe Gly Asn Ala Val Pro Arg Ile Ser

290	295	300
Tyr Ala His Gly Phe Asp Phe Ile Glu Arg Gly Lys Lys Gly Glu His		
305	310	315
Thr Ser Tyr Asp Gln Ile Ile Ala Gly Val Asp Tyr Asp Phe Ser Lys		
325	330	335
Arg Thr Ser Ala Ile Val Ser Gly Ala Trp Leu Lys Arg Asn Thr Gly		
340	345	350
Ile Gly Asn Tyr Thr Gln Ile Asn Ala Ala Ser Val Gly Leu Arg His		
355	360	365
Lys Phe		
370		

<210>	13					
<211>	1104					
<212>	DNA					
<213>	Neisseria meningitidis (group B)					
<400>	13					
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caattgaccg	agcagccctc	aaaggctcaa	ggtcaaacga	acaatcaggt	aaaagttaact	120
aaggcaaaaa	gccgcatacg	gacgaaaatc	agcgatttcg	gctcgtttat	cggctttaag	180
gggagcgagg	atttgggcga	agggctgaag	gctgtttggc	agcttgagca	agacgtatcc	240
gttgcggcg	gcggcgcgac	ccagtgggc	aacagggaaat	ccttgcgg	cttggcaggc	300
gaattcggta	cgctgcgcgc	cggtcgcgtt	gcaaatcagt	ttgacgatgc	cagccaagcc	360
attgatcctt	gggacagcaa	caatgatgtg	gcttcgcaat	tggtatattt	caaacgccac	420
gacgatatgc	cggtttccgt	acgctacgac	tctccggact	tttccggttt	cagcggcagc	480
gtccaaatcg	ttccggctca	aaacagcaag	tccgcctata	cggccgtta	tgtggatgag	540
cagagtaagt	atcatgcggc	tgttgcggc	aagcccggat	cggatgtgta	ttatgccggt	600
ctgaattata	agaatggcgg	ttttgccggg	aactatgcct	ttaaatatgc	gaaacacgccc	660
aatgtcggac	gtgatgcttt	tgagttgttc	ttgctcggca	gcgggagtga	tcaagccaaa	720
ggtaccgatc	ccttgaaaaaa	ccatcaggta	caccgcctga	cggcggcta	tgaggaaggc	780
ggcttgaatc	tcgccttggc	ggctcagttg	gatttgtctg	aaaatgccga	caaaacccaaa	840
aacagtacga	ccgaaattgc	cgccactgct	tcctaccgct	tcggtaatgc	agttccacgc	900

atcagctatg cccatggttt cgacttgatec gaacgcggta aaaaaggcga aaataccagc 960
 tacgatcaaa tcacgcggcg cgttgattat gatTTTCCA aacgcacttc cgccatcgTG 1020
 tctggcgctt ggctgaaacg caataccggc atcggcaact acactcaaAT taatGCCGCC 1080
 tccgtcggtt tgccacAA attc 1104

<210> 14
 <211> 1056
 <212> PRT
 <213> Neisseria meningitidis (group B)
 <400> 14

Met Glu Thr Ala Ser Pro Val Ala Leu Ser Glu Arg Leu Glu Thr Tyr
 1 5 10 15

Arg Gly Leu Tyr Gly Leu Ile Leu Glu Leu Tyr Ser Ala Leu Ala Gly
 20 25 30

Leu Tyr Val Ala Leu Gly Leu Gly Leu Tyr Ala Arg Gly Ala Ser Asn
 35 40 45

Ile Leu Glu Gly Leu Asn Leu Glu Gly Leu Asn Leu Glu Thr His Arg
 50 55 60

Gly Leu Gly Leu Asn Pro Arg Ser Glu Arg Leu Tyr Ser Ala Leu Ala
 65 70 75 80

Gly Leu Asn Gly Leu Tyr Gly Leu Asn Thr His Arg Ala Ser Asn Ala
 85 90 95

Ser Asn Gly Leu Asn Val Ala Leu Leu Tyr Ser Val Ala Leu Thr His
 100 105 110

Arg Leu Tyr Ser Ala Leu Ala Leu Tyr Ser Ser Glu Arg Ala Arg Gly
 115 120 125

Ile Leu Glu Ala Arg Gly Thr His Arg Leu Tyr Ser Ile Leu Glu Ser
 130 135 140

Glu Arg Ala Ser Pro Pro His Glu Gly Leu Tyr Ser Glu Arg Pro His
 145 150 155 160

Glu Ile Leu Glu Gly Leu Tyr Pro His Glu Leu Tyr Ser Gly Leu Tyr

165

170

175

Ser Glu Arg Gly Leu Ala Ser Pro Leu Glu Gly Leu Tyr Gly Leu Gly
180 185 190

Leu Tyr Leu Glu Leu Tyr Ser Ala Leu Ala Val Ala Leu Thr Arg Pro
195 200 205

Gly Leu Asn Leu Glu Gly Leu Gly Leu Asn Ala Ser Pro Val Ala Leu
210 215 220

Ser Glu Arg Val Ala Leu Ala Leu Ala Gly Leu Tyr Gly Leu Tyr Gly
225 230 235 240

Leu Tyr Ala Leu Ala Thr His Arg Gly Leu Asn Thr Arg Pro Gly Leu
245 250 255

Tyr Ala Ser Asn Ala Arg Gly Gly Leu Ser Glu Arg Pro His Glu Val
260 265 270

Ala Leu Gly Leu Tyr Leu Glu Ala Leu Ala Gly Leu Tyr Gly Leu Pro
275 280 285

His Glu Gly Leu Tyr Thr His Arg Leu Glu Ala Arg Gly Ala Leu Ala
290 295 300

Gly Leu Tyr Ala Arg Gly Val Ala Leu Ala Leu Ala Ala Ser Asn Gly
305 310 315 320

Leu Asn Pro His Glu Ala Ser Pro Ala Ser Pro Ala Leu Ala Ser Glu
325 330 335

Arg Gly Leu Asn Ala Leu Ala Ile Leu Glu Ala Ser Pro Pro Arg Thr
340 345 350

Arg Pro Ala Ser Pro Ser Glu Arg Ala Ser Asn Ala Ser Asn Ala Ser
355 360 365

Pro Val Ala Leu Ala Leu Ala Ser Glu Arg Gly Leu Asn Leu Glu Gly
370 375 380

Leu Tyr Ile Leu Glu Pro His Glu Leu Tyr Ser Ala Arg Gly His Ile
385 390 395 400

Ser Ala Ser Pro Ala Ser Pro Met Glu Thr Pro Arg Val Ala Leu Ser
405 410 415

Glu Arg Val Ala Leu Ala Arg Gly Thr Tyr Arg Ala Ser Pro Ser Glu
420 425 430

Arg Pro Arg Ala Ser Pro Pro His Glu Ser Glu Arg Gly Leu Tyr Pro
435 440 445

His Glu Ser Glu Arg Gly Leu Tyr Ser Glu Arg Val Ala Leu Gly Leu
450 455 460

Asn Pro His Glu Val Ala Leu Pro Arg Ala Leu Ala Gly Leu Asn Ala
465 470 475 480

Ser Asn Ser Glu Arg Leu Tyr Ser Ser Glu Arg Ala Leu Ala Thr Tyr
485 490 495

Arg Thr His Arg Pro Arg Ala Leu Ala Thr Tyr Arg Val Ala Leu Ala
500 505 510

Ser Pro Gly Leu Gly Leu Asn Ser Glu Arg Leu Tyr Ser Thr Tyr Arg
515 520 525

His Ile Ser Ala Leu Ala Ala Leu Ala Val Ala Leu Val Ala Leu Gly
530 535 540

Leu Tyr Leu Tyr Ser Pro Arg Gly Leu Tyr Ser Glu Arg Ala Ser Pro
545 550 555 560

Val Ala Leu Thr Tyr Arg Thr Tyr Arg Ala Leu Ala Gly Leu Tyr Leu
565 570 575

Glu Ala Ser Asn Thr Tyr Arg Leu Tyr Ser Ala Ser Asn Gly Leu Tyr
580 585 590

Gly Leu Tyr Pro His Glu Ala Leu Ala Gly Leu Tyr Ala Ser Asn Thr
595 600 605

Tyr Arg Ala Leu Ala Pro His Glu Leu Tyr Ser Thr Tyr Arg Ala Leu
610 615 620

Ala Leu Tyr Ser His Ile Ser Ala Leu Ala Ala Ser Asn Val Ala Leu

625

630

635

640

Gly Leu Tyr Ala Arg Gly Ala Ser Pro Ala Leu Ala Pro His Glu Gly
645 650 655

Leu Leu Glu Pro His Glu Leu Glu Leu Glu Gly Leu Tyr Ser Glu Arg
660 665 670

Gly Leu Tyr Ser Glu Arg Ala Ser Pro Gly Leu Asn Ala Leu Ala Leu
675 680 685

Tyr Ser Gly Leu Tyr Thr His Arg Ala Ser Pro Pro Arg Leu Glu Leu
690 695 700

Tyr Ser Ala Ser Asn His Ile Ser Gly Leu Asn Val Ala Leu His Ile
705 710 715 720

Ser Ala Arg Gly Leu Glu Thr His Arg Gly Leu Tyr Gly Leu Tyr Thr
725 730 735

Tyr Arg Gly Leu Gly Leu Gly Leu Tyr Gly Leu Tyr Leu Glu Ala Ser
740 745 750

Asn Leu Glu Ala Leu Ala Leu Glu Ala Leu Ala Ala Leu Ala Gly Leu
755 760 765

Asn Leu Glu Ala Ser Pro Leu Glu Ser Glu Arg Gly Leu Ala Ser Asn
770 775 780

Ala Leu Ala Ala Ser Pro Leu Tyr Ser Thr His Arg Leu Tyr Ser Ala
785 790 795 800

Ser Asn Ser Glu Arg Thr His Arg Thr His Arg Gly Leu Ile Leu Glu
805 810 815

Ala Leu Ala Ala Leu Ala Thr His Arg Ala Leu Ala Ser Glu Arg Thr
820 825 830

Tyr Arg Ala Arg Gly Pro His Glu Gly Leu Tyr Ala Ser Asn Ala Leu
835 840 845

Ala Val Ala Leu Pro Arg Ala Arg Gly Ile Leu Glu Ser Glu Arg Thr
850 855 860

Tyr Arg Ala Leu Ala His Ile Ser Gly Leu Tyr Pro His Glu Ala Ser
865 870 875 880

Pro Leu Glu Ile Leu Glu Gly Leu Ala Arg Gly Gly Leu Tyr Leu Tyr
885 890 895

Ser Leu Tyr Ser Gly Leu Tyr Gly Leu Ala Ser Asn Thr His Arg Ser
900 905 910

Glu Arg Thr Tyr Arg Ala Ser Pro Gly Leu Asn Ile Leu Glu Ile Leu
915 920 925

Glu Ala Leu Ala Gly Leu Tyr Val Ala Leu Ala Ser Pro Thr Tyr Arg
930 935 940

Ala Ser Pro Pro His Glu Ser Glu Arg Leu Tyr Ser Ala Arg Gly Thr
945 950 955 960

His Arg Ser Glu Arg Ala Leu Ala Ile Leu Glu Val Ala Leu Ser Glu
965 970 975

Arg Gly Leu Tyr Ala Leu Ala Thr Arg Pro Leu Glu Leu Tyr Ser Ala
980 985 990

Arg Gly Ala Ser Asn Thr His Arg Gly Leu Tyr Ile Leu Glu Gly Leu
995 1000 1005

Tyr Ala Ser Asn Thr Tyr Arg Thr His Arg Gly Leu Asn Ile Leu
1010 1015 1020

Glu Ala Ser Asn Ala Leu Ala Ala Leu Ala Ser Glu Arg Val Ala
1025 1030 1035

Leu Gly Leu Tyr Leu Glu Ala Arg Gly His Ile Ser Leu Tyr Ser
1040 1045 1050

Pro His Glu
1055

<210> 15
<211> 1119
<212> DNA
<213> Neisseria meningitidis (group B)

<400> 15
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caattgaccg agcagccccca agtaactaac ggtgtcaag gcaatcaggt aaaagtact 120
aaggccaaaa gcccacatcg gacgaaaatc agcgatttcg gctcgtttat cggctttaag 180
gggagcggagg atttggcga agggctgaag gctgttggc agcttgagca agacgtatcc 240
gttgcggcg gcggcgcgtc ccagtgggc aacaggaaat ccttatacg 300
gaattcggtta cgctgcgcgc cggtcgcgtt gcaaatacgat ttgacgatgc cagccaagcc 360
attaatcctt gggacagcaa taatgatgtg gcttcgcaat tgggtatTTT caaacgccac 420
gacgatatgc cggttccgt acgctacgat tctccgaaat tttccggTTT cagcggcagc 480
gtccaaattcg ttccggctca aaacagcaag tccgcctata agccggctta ttatactaag 540
gatacaaaca ataatcttac tctcggtccg gctgttgcg gcaagcccgg atcggatgtg 600
tattatgccg gtctgaatta caaaaatggc ggTTTgccc ggaactatgc ctTTaaatat 660
gcgagacacg ccaatgtcgg acgtaatgct ttgagttgt tcttgatcgg cagcgcgacg 720
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ggctatgagg aaggcggctt gaatctcgCC ttggcggctc agttggattt gtctgaaaat 840
gccgacaaaa ccaaaaacag tacgaccgaa attgccgcca ctgcttccta ccgcttcgg 900
aatgcagttc cgccatcgat ctatgcccattt ggTTTcgact ttatcgaacg cggtaaaaaa 960
ggcgaaaata ccagctacga tcaaatacatc gccggcgttg attatgattt ttccaaacgc 1020
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caaattaatg ccgcctccgt cggttgcgc cacaaattc 1119

<210> 16

<211> 1070

<212> PRT

<213> Neisseria meningitidis (group B)

<400> 16

Met	Glu	Thr	Ala	Ser	Pro	Val	Ala	Leu	Ser	Glu	Arg	Leu	Glu	Thr	Tyr
1															

Arg	Gly	Leu	Tyr	Gly	Leu	Ile	Leu	Glu	Leu	Tyr	Ser	Ala	Leu	Ala	Gly
20															

Leu	Tyr	Val	Ala	Leu	Gly	Leu	Gly	Leu	Tyr	Ala	Arg	Gly	Ala	Ser	Asn
35															

Ile Leu Glu Gly Leu Asn Ala Leu Ala Gly Leu Asn Leu Glu Thr His
50 55 60

Arg Gly Leu Gly Leu Asn Pro Arg Gly Leu Asn Val Ala Leu Thr His
65 70 75 80

Arg Ala Ser Asn Gly Leu Tyr Val Ala Leu Gly Leu Asn Gly Leu Tyr
85 90 95

Ala Ser Asn Gly Leu Asn Val Ala Leu Leu Tyr Ser Val Ala Leu Thr
100 105 110

His Arg Leu Tyr Ser Ala Leu Ala Leu Tyr Ser Ser Glu Arg Ala Arg
115 120 125

Gly Ile Leu Glu Ala Arg Gly Thr His Arg Leu Tyr Ser Ile Leu Glu
130 135 140

Ser Glu Arg Ala Ser Pro Pro His Glu Gly Leu Tyr Ser Glu Arg Pro
145 150 155 160

His Glu Ile Leu Glu Gly Leu Tyr Pro His Glu Leu Tyr Ser Gly Leu
165 170 175

Tyr Ser Glu Arg Gly Leu Ala Ser Pro Leu Glu Gly Leu Tyr Gly Leu
180 185 190

Gly Leu Tyr Leu Glu Leu Tyr Ser Ala Leu Ala Val Ala Leu Thr Arg
195 200 205

Pro Gly Leu Asn Leu Glu Gly Leu Gly Leu Asn Ala Ser Pro Val Ala
210 215 220

Leu Ser Glu Arg Val Ala Leu Ala Leu Ala Gly Leu Tyr Gly Leu Tyr
225 230 235 240

Gly Leu Tyr Ala Leu Ala Ser Glu Arg Gly Leu Asn Thr Arg Pro Gly
245 250 255

Leu Tyr Ala Ser Asn Ala Arg Gly Gly Leu Ser Glu Arg Pro His Glu
260 265 270

Ile Leu Glu Gly Leu Tyr Leu Glu Ala Leu Ala Gly Leu Tyr Gly Leu

275

280

285

Pro His Glu Gly Leu Tyr Thr His Arg Leu Glu Ala Arg Gly Ala Leu
290 295 300

Ala Gly Leu Tyr Ala Arg Gly Val Ala Leu Ala Leu Ala Ala Ser Asn
305 310 315 320

Gly Leu Asn Pro His Glu Ala Ser Pro Ala Ser Pro Ala Leu Ala Ser
325 330 335

Glu Arg Gly Leu Asn Ala Leu Ala Ile Leu Glu Ala Ser Asn Pro Arg
340 345 350

Thr Arg Pro Ala Ser Pro Ser Glu Arg Ala Ser Asn Ala Ser Asn Ala
355 360 365

Ser Pro Val Ala Leu Ala Leu Ala Ser Glu Arg Gly Leu Asn Leu Glu
370 375 380

Gly Leu Tyr Ile Leu Glu Pro His Glu Leu Tyr Ser Ala Arg Gly His
385 390 395 400

Ile Ser Ala Ser Pro Ala Ser Pro Met Glu Thr Pro Arg Val Ala Leu
405 410 415

Ser Glu Arg Val Ala Leu Ala Arg Gly Thr Tyr Arg Ala Ser Pro Ser
420 425 430

Glu Arg Pro Arg Gly Leu Pro His Glu Ser Glu Arg Gly Leu Tyr Pro
435 440 445

His Glu Ser Glu Arg Gly Leu Tyr Ser Glu Arg Val Ala Leu Gly Leu
450 455 460

Asn Pro His Glu Val Ala Leu Pro Arg Ala Leu Ala Gly Leu Asn Ala
465 470 475 480

Ser Asn Ser Glu Arg Leu Tyr Ser Ser Glu Arg Ala Leu Ala Thr Tyr
485 490 495

Arg Leu Tyr Ser Pro Arg Ala Leu Ala Thr Tyr Arg Thr Tyr Arg Thr
500 505 510

His Arg Leu Tyr Ser Ala Ser Pro Thr His Arg Ala Ser Asn Ala Ser
515 520 525

Asn Ala Ser Asn Leu Glu Thr His Arg Leu Glu Val Ala Leu Pro Arg
530 535 540

Ala Leu Ala Val Ala Leu Val Ala Leu Gly Leu Tyr Leu Tyr Ser Pro
545 550 555 560

Arg Gly Leu Tyr Ser Glu Arg Ala Ser Pro Val Ala Leu Thr Tyr Arg
565 570 575

Thr Tyr Arg Ala Leu Ala Gly Leu Tyr Leu Glu Ala Ser Asn Thr Tyr
580 585 590

Arg Leu Tyr Ser Ala Ser Asn Gly Leu Tyr Gly Leu Tyr Pro His Glu
595 600 605

Ala Leu Ala Gly Leu Tyr Ala Ser Asn Thr Tyr Arg Ala Leu Ala Pro
610 615 620

His Glu Leu Tyr Ser Thr Tyr Arg Ala Leu Ala Ala Arg Gly His Ile
625 630 635 640

Ser Ala Leu Ala Ala Ser Asn Val Ala Leu Gly Leu Tyr Ala Arg Gly
645 650 655

Ala Ser Asn Ala Leu Ala Pro His Glu Gly Leu Leu Glu Pro His Glu
660 665 670

Leu Glu Ile Leu Glu Gly Leu Tyr Ser Glu Arg Ala Leu Ala Thr His
675 680 685

Arg Ser Glu Arg Ala Ser Pro Gly Leu Ala Leu Ala Leu Tyr Ser Gly
690 695 700

Leu Tyr Thr His Arg Ala Ser Pro Pro Arg Leu Glu Leu Tyr Ser Ala
705 710 715 720

Ser Asn His Ile Ser Gly Leu Asn Val Ala Leu His Ile Ser Ala Arg
725 730 735

Gly Leu Glu Thr His Arg Gly Leu Tyr Gly Leu Tyr Thr Tyr Arg Gly

740

745

750

Leu Gly Leu Gly Leu Tyr Gly Leu Tyr Leu Glu Ala Ser Asn Leu Glu
755 760 765

Ala Leu Ala Leu Glu Ala Leu Ala Ala Leu Ala Gly Leu Asn Leu Glu
770 775 780

Ala Ser Pro Leu Glu Ser Glu Arg Gly Leu Ala Ser Asn Ala Leu Ala
785 790 795 800

Ala Ser Pro Leu Tyr Ser Thr His Arg Leu Tyr Ser Ala Ser Asn Ser
805 810 815

Glu Arg Thr His Arg Thr His Arg Gly Leu Ile Leu Glu Ala Leu Ala
820 825 830

Ala Leu Ala Thr His Arg Ala Leu Ala Ser Glu Arg Thr Tyr Arg Ala
835 840 845

Arg Gly Pro His Glu Gly Leu Tyr Ala Ser Asn Ala Leu Ala Val Ala
850 855 860

Leu Pro Arg Ala Arg Gly Ile Leu Glu Ser Glu Arg Thr Tyr Arg Ala
865 870 875 880

Leu Ala His Ile Ser Gly Leu Tyr Pro His Glu Ala Ser Pro Pro His
885 890 895

Glu Ile Leu Glu Gly Leu Ala Arg Gly Gly Leu Tyr Leu Tyr Ser Leu
900 905 910

Tyr Ser Gly Leu Tyr Gly Leu Ala Ser Asn Thr His Arg Ser Glu Arg
915 920 925

Thr Tyr Arg Ala Ser Pro Gly Leu Asn Ile Leu Glu Ile Leu Glu Ala
930 935 940

Leu Ala Gly Leu Tyr Val Ala Leu Ala Ser Pro Thr Tyr Arg Ala Ser
945 950 955 960

Pro Pro His Glu Ser Glu Arg Leu Tyr Ser Ala Arg Gly Thr His Arg
965 970 975

Ser Glu Arg Ala Leu Ala Ile Leu Glu Val Ala Leu Ser Glu Arg Gly
980 985 990

Leu Tyr Ala Leu Ala Thr Arg Pro Leu Glu Leu Tyr Ser Ala Arg Gly
995 1000 1005

Ala Ser Asn Thr His Arg Gly Leu Tyr Ile Leu Glu Gly Leu Tyr
1010 1015 1020

Ala Ser Asn Thr Tyr Arg Thr His Arg Gly Leu Asn Ile Leu Glu
1025 1030 1035

Ala Ser Asn Ala Leu Ala Ala Leu Ala Ser Glu Arg Val Ala Leu
1040 1045 1050

Gly Leu Tyr Leu Glu Ala Arg Gly His Ile Ser Leu Tyr Ser Pro
1055 1060 1065

His Glu
1070

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<210> 17
<211> 1113
<212> DNA
<213> Neisseria meningitidis (group B)

<400> 17
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caattgactg aagcacaagc cgctaacggt ggagcgagcg gtcaggtaaa agttactaag 120
gccaaaagcc gcatcaggac gaaaatcagt gatttcggct cgtttatcgg ctttaagggg 180
agtgaggatt tgggcgacgg gctgaaggct gtttggcagc ttgagcaaga cgtatccgtt 240
gcccggcg gcgcgaccca gtggggcaac agggaatcct ttatcggctt ggcaggcgaa 300
ttcggtaacgc tgcgcgccgg tcgcgttgcg aatcagttt acgatgccag ccaagccatt 360
gatccttggg acagcaataa tgatgtggct tcgcaattgg gtatttcaa acgccacgac 420
gacatgccgg ttccgtacg ctacgattcc cccgaatttt ccggttttag cggcagcggt 480
caattcggtt cgatccaaaa cagcaagtcc gcctatacgc cggcttattta tactaaggat 540
acaaaacaata atcttactct cgttccggct gttgtcggca agccccggatc ggatgtgtat 600
tatgccggtc tgaattacaa aaatggcggt ttgcgggaa actatgcctt taaaatatgcg 660
agacacgcca atgtcggacg taatgcgtt gagttgttct tgatcggcag cgggagtgtat 720
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caagccaaag gtaccgatcc cttaaaaac catcaggtac accgtctgac gggcggctat 780
 gaggaggcg gcttgaatct cgccctggcg gtcagttgg atttgtctga aaatggcgac 840
 aaaaccaaaa acagtacgac cgaaattgcc gccactgctt cctaccgctt cggtaatgca 900
 gttccacgca tcagctatgc ccatggttc gactttatcg aacgcgtaa aaaaggcgaa 960
 aataccagct acgatcaa at catgccggc gttgattatg attttccaa acgcacttcc 1020
 gccatcggt ctggcgctt gctgaagcgc aataccggca tcggcaacta cactcaaatt 1080
 aatgccgcct ccgtcggtt gcgccacaaa ttc 1113

<210> 18
 <211> 371
 <212> PRT
 <213> Neisseria meningitidis (group B)

<400> 18

Met Asp Val Ser Leu Tyr Gly Glu Ile Lys Ala Gly Val Glu Gly Arg
 1 5 10 15

Asn Tyr Gln Leu Gln Leu Thr Glu Ala Gln Ala Ala Asn Gly Gly Ala
 20 25 30

Ser Gly Gln Val Lys Val Thr Lys Ala Lys Ser Arg Ile Arg Thr Lys
 35 40 45

Ile Ser Asp Phe Gly Ser Phe Ile Gly Phe Lys Gly Ser Glu Asp Leu
 50 55 60

Gly Asp Gly Leu Lys Ala Val Trp Gln Leu Glu Gln Asp Val Ser Val
 65 70 75 80

Ala Gly Gly Ala Thr Gln Trp Gly Asn Arg Glu Ser Phe Ile Gly
 85 90 95

Leu Ala Gly Glu Phe Gly Thr Leu Arg Ala Gly Arg Val Ala Asn Gln
 100 105 110

Phe Asp Asp Ala Ser Gln Ala Ile Asp Pro Trp Asp Ser Asn Asn Asp
 115 120 125

Val Ala Ser Gln Leu Gly Ile Phe Lys Arg His Asp Asp Met Pro Val
 130 135 140

Ser Val Arg Tyr Asp Ser Pro Glu Phe Ser Gly Phe Ser Gly Ser Val
145 150 155 160

Gln Phe Val Pro Ile Gln Asn Ser Lys Ser Ala Tyr Thr Pro Ala Tyr
165 170 175

Tyr Thr Lys Asp Thr Asn Asn Asn Leu Thr Leu Val Pro Ala Val Val
180 185 190

Gly Lys Pro Gly Ser Asp Val Tyr Tyr Ala Gly Leu Asn Tyr Lys Asn
195 200 205

Gly Gly Phe Ala Gly Asn Tyr Ala Phe Lys Tyr Ala Arg His Ala Asn
210 215 220

Val Gly Arg Asn Ala Phe Glu Leu Phe Leu Ile Gly Ser Gly Ser Asp
225 230 235 240

Gln Ala Lys Gly Thr Asp Pro Leu Lys Asn His Gln Val His Arg Leu
245 250 255

Thr Gly Gly Tyr Glu Glu Gly Gly Leu Asn Leu Ala Leu Ala Ala Gln
260 265 270

Leu Asp Leu Ser Glu Asn Gly Asp Lys Thr Lys Asn Ser Thr Thr Glu
275 280 285

Ile Ala Ala Thr Ala Ser Tyr Arg Phe Gly Asn Ala Val Pro Arg Ile
290 295 300

Ser Tyr Ala His Gly Phe Asp Phe Ile Glu Arg Gly Lys Lys Gly Glu
305 310 315 320

Asn Thr Ser Tyr Asp Gln Ile Ile Ala Gly Val Asp Tyr Asp Phe Ser
325 330 335

Lys Arg Thr Ser Ala Ile Val Ser Gly Ala Trp Leu Lys Arg Asn Thr
340 345 350

Gly Ile Gly Asn Tyr Thr Gln Ile Asn Ala Ala Ser Val Gly Leu Arg
355 360 365

His Lys Phe

370

<210> 19
 <211> 1110
 <212> DNA
 <213> Neisseria meningitidis (group B)

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caattgaccg	aaccaccctc	aaaaggtcag	acgggcaata	aagttaactaa	gggcaaaagc	120
cgcatcagga	cgaaaatcaa	cgatttcggc	tcgtttatcg	gctttaaggg	gagcgaggat	180
ttgggcgaag	ggctgaaggc	tgtttggcag	cttgagcaag	acgtatccgt	tgccggcggc	240
ggcgcgaccc	agtggggcaa	caggaaatcc	tttatcggct	tggcaggcga	attcggcacg	300
ctgcgcgccc	gtcgcgttgc	aatcagttt	gacgatgcca	gccaagccat	tgatccttgg	360
gacagcaaca	atgatgtggc	ttcgcaattt	ggtatttca	aacgccacga	cgatatgccc	420
gtttctgtac	gctacgactc	tccggacttt	tccgggtttca	gcggcagcgt	ccaattcggt	480
ccggccccaa	acagcaaatac	cgcctatacg	ccggctactt	atactgtgga	tagtagtgtt	540
gttggtaactc	ccgttcctgc	tgttgcggc	aagcccgat	cggatgtgt	ttatgccggt	600
ctgaattaca	aaaatggcgg	ttttgccggg	aactatgcct	ttaaatacgc	gaaacacgcc	660
aatgtgggcc	gtgatgcttt	taatttgttc	ttgcttggc	gcatcggcga	ggatgatgaa	720
gccaaggta	ccgatccctt	aaaaaaccat	caggtacacc	gcctgacggg	cggttatgag	780
gaaggcggct	tgaatctcgc	cttggcggct	cagttggatt	tgtctgaaaa	tggcacaacaa	840
accaaaaaca	gtacgaccga	aattgccgc	actgcttcct	accgcttcgg	gaatgcagtt	900
ccacgcacca	gctatgccca	tggttcgcac	tttatcgaac	gcggtaaaaa	aggcgaacat	960
accagctacg	atcaaatacat	cggcggcgtt	gattatgatt	tttccaaacg	cacttccgccc	1020
atcgtgtctg	gtgcttggct	gaaacgcaat	accggcatcg	gcaactacac	tcaaattaat	1080
gccgcctccg	tcggtttgcg	ccacaaattc				1110

<210> 20
 <211> 1060
 <212> PRT
 <213> Neisseria meningitidis (group B)

<400> 20

Met	Glu	Thr	Ala	Ser	Pro	Val	Ala	Leu	Ser	Glu	Arg	Leu	Glu	Thr	Tyr
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Arg Gly Leu Tyr Gly Leu Ile Leu Glu Leu Tyr Ser Ala Leu Ala Gly
20 25 30

Leu Tyr Val Ala Leu Gly Leu Gly Leu Tyr Ala Ser Asn Ala Ser Asn
35 40 45

Ile Leu Glu Gly Leu Asn Leu Glu Gly Leu Asn Leu Glu Thr His Arg
50 55 60

Gly Leu Pro Arg Pro Arg Ser Glu Arg Leu Tyr Ser Gly Leu Tyr Gly
65 70 75 80

Leu Asn Thr His Arg Gly Leu Tyr Ala Ser Asn Leu Tyr Ser Val Ala
85 90 95

Leu Thr His Arg Leu Tyr Ser Gly Leu Tyr Leu Tyr Ser Ser Glu Arg
100 105 110

Ala Arg Gly Ile Leu Glu Ala Arg Gly Thr His Arg Leu Tyr Ser Ile
115 120 125

Leu Glu Ala Ser Asn Ala Ser Pro Pro His Glu Gly Leu Tyr Ser Glu
130 135 140

Arg Pro His Glu Ile Leu Glu Gly Leu Tyr Pro His Glu Leu Tyr Ser
145 150 155 160

Gly Leu Tyr Ser Glu Arg Gly Leu Ala Ser Pro Leu Glu Gly Leu Tyr
165 170 175

Gly Leu Gly Leu Tyr Leu Glu Leu Tyr Ser Ala Leu Ala Val Ala Leu
180 185 190

Thr Arg Pro Gly Leu Asn Leu Glu Gly Leu Gly Leu Asn Ala Ser Pro
195 200 205

Val Ala Leu Ser Glu Arg Val Ala Leu Ala Leu Ala Gly Leu Tyr Gly
210 215 220

Leu Tyr Gly Leu Tyr Ala Leu Ala Thr His Arg Gly Leu Asn Thr Arg
225 230 235 240

Pro Gly Leu Tyr Ala Ser Asn Ala Arg Gly Gly Leu Ser Glu Arg Pro

245

250

255

His Glu Ile Leu Glu Gly Leu Tyr Leu Glu Ala Leu Ala Gly Leu Tyr
260 265 270

Gly Leu Pro His Glu Gly Leu Tyr Thr His Arg Leu Glu Ala Arg Gly
275 280 285

Ala Leu Ala Gly Leu Tyr Ala Arg Gly Val Ala Leu Ala Leu Ala Ala
290 295 300

Ser Asn Gly Leu Asn Pro His Glu Ala Ser Pro Ala Ser Pro Ala Leu
305 310 315 320

Ala Ser Glu Arg Gly Leu Asn Ala Leu Ala Ile Leu Glu Ala Ser Pro
325 330 335

Pro Arg Thr Arg Pro Ala Ser Pro Ser Glu Arg Ala Ser Asn Ala Ser
340 345 350

Asn Ala Ser Pro Val Ala Leu Ala Leu Ala Ser Glu Arg Gly Leu Asn
355 360 365

Leu Glu Gly Leu Tyr Ile Leu Glu Pro His Glu Leu Tyr Ser Ala Arg
370 375 380

Gly His Ile Ser Ala Ser Pro Ala Ser Pro Met Glu Thr Pro Arg Val
385 390 395 400

Ala Leu Ser Glu Arg Val Ala Leu Ala Arg Gly Thr Tyr Arg Ala Ser
405 410 415

Pro Ser Glu Arg Pro Arg Ala Ser Pro Pro His Glu Ser Glu Arg Gly
420 425 430

Leu Tyr Pro His Glu Ser Glu Arg Gly Leu Tyr Ser Glu Arg Val Ala
435 440 445

Leu Gly Leu Asn Pro His Glu Val Ala Leu Pro Arg Ala Leu Ala Gly
450 455 460

Leu Asn Ala Ser Asn Ser Glu Arg Leu Tyr Ser Ser Glu Arg Ala Leu
465 470 475 480

Ala Thr Tyr Arg Thr His Arg Pro Arg Ala Leu Ala Thr His Arg Thr
485 490 495

Tyr Arg Thr His Arg Val Ala Leu Ala Ser Pro Ser Glu Arg Ser Glu
500 505 510

Arg Gly Leu Tyr Val Ala Leu Val Ala Leu Thr His Arg Pro Arg Val
515 520 525

Ala Leu Pro Arg Ala Leu Ala Val Ala Leu Val Ala Leu Gly Leu Tyr
530 535 540

Leu Tyr Ser Pro Arg Gly Leu Tyr Ser Glu Arg Ala Ser Pro Val Ala
545 550 555 560

Leu Thr Tyr Arg Thr Tyr Arg Ala Leu Ala Gly Leu Tyr Leu Glu Ala
565 570 575

Ser Asn Thr Tyr Arg Leu Tyr Ser Ala Ser Asn Gly Leu Tyr Gly Leu
580 585 590

Tyr Pro His Glu Ala Leu Ala Gly Leu Tyr Ala Ser Asn Thr Tyr Arg
595 600 605

Ala Leu Ala Pro His Glu Leu Tyr Ser Thr Tyr Arg Ala Leu Ala Leu
610 615 620

Tyr Ser His Ile Ser Ala Leu Ala Ala Ser Asn Val Ala Leu Gly Leu
625 630 635 640

Tyr Ala Arg Gly Ala Ser Pro Ala Leu Ala Pro His Glu Ala Ser Asn
645 650 655

Leu Glu Pro His Glu Leu Glu Leu Glu Gly Leu Tyr Ala Arg Gly Ile
660 665 670

Leu Glu Gly Leu Tyr Gly Leu Ala Ser Pro Ala Ser Pro Gly Leu Ala
675 680 685

Leu Ala Leu Tyr Ser Gly Leu Tyr Thr His Arg Ala Ser Pro Pro Arg
690 695 700

Leu Glu Leu Tyr Ser Ala Ser Asn His Ile Ser Gly Leu Asn Val Ala

705

710

715

720

Leu His Ile Ser Ala Arg Gly Leu Glu Thr His Arg Gly Leu Tyr Gly
725 730 735

Leu Tyr Thr Tyr Arg Gly Leu Gly Leu Tyr Gly Leu Tyr Leu
740 745 750

Glu Ala Ser Asn Leu Glu Ala Leu Ala Leu Glu Ala Leu Ala Ala Leu
755 760 765

Ala Gly Leu Asn Leu Glu Ala Ser Pro Leu Glu Ser Glu Arg Gly Leu
770 775 780

Ala Ser Asn Gly Leu Tyr Ala Ser Pro Leu Tyr Ser Thr His Arg Leu
785 790 795 800

Tyr Ser Ala Ser Asn Ser Glu Arg Thr His Arg Thr His Arg Gly Leu
805 810 815

Ile Leu Glu Ala Leu Ala Ala Leu Ala Thr His Arg Ala Leu Ala Ser
820 825 830

Glu Arg Thr Tyr Arg Ala Arg Gly Pro His Glu Gly Leu Tyr Ala Ser
835 840 845

Asn Ala Leu Ala Val Ala Leu Pro Arg Ala Arg Gly Ile Leu Glu Ser
850 855 860

Glu Arg Thr Tyr Arg Ala Leu Ala His Ile Ser Gly Leu Tyr Pro His
865 870 875 880

Glu Ala Ser Pro Pro His Glu Ile Leu Glu Gly Leu Ala Arg Gly Gly
885 890 895

Leu Tyr Leu Tyr Ser Leu Tyr Ser Gly Leu Tyr Gly Leu His Ile Ser
900 905 910

Thr His Arg Ser Glu Arg Thr Tyr Arg Ala Ser Pro Gly Leu Asn Ile
915 920 925

Leu Glu Ile Leu Glu Ala Leu Ala Gly Leu Tyr Val Ala Leu Ala Ser
930 935 940

Pro Thr Tyr Arg Ala Ser Pro Pro His Glu Ser Glu Arg Leu Tyr Ser
945 950 955 960

Ala Arg Gly Thr His Arg Ser Glu Arg Ala Leu Ala Ile Leu Glu Val
965 970 975

Ala Leu Ser Glu Arg Gly Leu Tyr Ala Leu Ala Thr Arg Pro Leu Glu
980 985 990

Leu Tyr Ser Ala Arg Gly Ala Ser Asn Thr His Arg Gly Leu Tyr Ile
995 1000 1005

Leu Glu Gly Leu Tyr Ala Ser Asn Thr Tyr Arg Thr His Arg Gly
1010 1015 1020

Leu Asn Ile Leu Glu Ala Ser Asn Ala Leu Ala Ala Leu Ala Ser
1025 1030 1035

Glu Arg Val Ala Leu Gly Leu Tyr Leu Glu Ala Arg Gly His Ile
1040 1045 1050

Ser Leu Tyr Ser Pro His Glu
1055 1060

<210> 21
<211> 45
<212> DNA
<213> Neisseria meningitidis (group B)

<400> 21
cgcgagatct catatggatg tcagcctata cggcgaaatc aaagc 45

<210> 22
<211> 46
<212> DNA
<213> Neisseria meningitidis (group B)

<400> 22
cgtcggttg cgccacaaat tctaattgagt gactgaagat ctgcgcg 46

<210> 23
<211> 70
<212> DNA
<213> Neisseria meningitidis (group B)

<400> 23
cgcgagatct catatggatg tcagcctata cggcgaaatc aaagccggcg tggaaggcag 60

gaactaccag

70

<210> 24
 <211> 1110
 <212> DNA
 <213> *Neisseria meningitidis* (group B)

<400> 24
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 caattgaccg agcagccctc aaaggctcaa ggtcaaacga acaatcaggt aaaagttaact 120
 aaggcaaaaa gccgcatacg gacgaaaatc agcgatttcg gctcgtttat cggctttaag 180
 gggagtgagg atttggcga cgagctgaag gctgtttggc agcttgagca agacgtatcc 240
 gttgccggcg gcggcgcgac ccgttgggc aataggaaat cctttgtcgg cttggcaggc 300
 gaattcggca cgctgcgcgc cggccgcgtt gcgaatcagt ttgacgatgc cagccaagcc 360
 attgatcctt gggacagcaa caatgatgtg gttcgcaat tgggtatttt caaacgcccac 420
 gacgatatgc cggttccgt acgctacgac tctccggact tttccggttt cagcggcagc 480
 gtccaaattcg ttccgatcca aaacagcaag tccgcctata agccggctta tgtggatgag 540
 aagaagatgg ttcatgcggc tggtgtcgcc aagcccgat cggatgtgta ttatgccggt 600
 ctgaattaca aaaatggcg 1110 agctatgcct ttaaatatgc gagacacgcc 660
 aatgtcgac gtatgtttt tgagttgttc ttgctcgca gcacgagtga tgaagccaaa 720
 ggtaccgatc cttgaaaaaa ccatcaggta caccgcctga cggcggcta tgaggaaggc 780
 ggcttgaatc tcgccttggc ggcccagttg gatttgtctg aaaatggcga caaagccaaa 840
 accaaaaaca gtacgaccga aattgcccg actgcttcct accgcttcgg taatgcagtt 900
 ccacgcatac gctatgcca tggttcgac ttgatcgaaac gcggtaaaaaa aggcaaaaat 960
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<210> 25
 <211> 370
 <212> PRT
 <213> *Neisseria meningitidis* (group B)

<400> 25

Met Ala Val Ser Leu Thr Gly Gly Ile Leu Ala Gly Val Gly Gly Ala
 1 5 10 15

Ala Ile Gly Leu Gly Leu Thr Gly Gly Pro Ser Leu Ala Gly Gly Gly
20 25 30

Thr Ala Ala Gly Val Leu Val Thr Leu Ala Leu Ser Ala Ile Ala Thr
35 40 45

Leu Ile Ser Ala Pro Gly Ser Pro Ile Gly Pro Leu Gly Ser Gly Ala
50 55 60

Leu Gly Ala Gly Leu Leu Ala Val Thr Gly Leu Gly Gly Ala Val Ser
65 70 75 80

Val Ala Gly Gly Ala Thr Ala Thr Gly Ala Ala Gly Ser Pro Val
85 90 95

Gly Leu Ala Gly Gly Pro Gly Thr Leu Ala Ala Gly Ala Val Ala Ala
100 105 110

Gly Pro Ala Ala Ala Ser Gly Ala Ile Ala Pro Thr Ala Ser Ala Ala
115 120 125

Ala Val Ala Ser Gly Leu Gly Ile Pro Leu Ala His Ala Ala Met Pro
130 135 140

Val Ser Val Ala Thr Ala Ser Pro Ala Pro Ser Gly Pro Ser Gly Ser
145 150 155 160

Val Gly Pro Val Pro Ile Gly Ala Ser Leu Ser Ala Thr Leu Pro Ala
165 170 175

Thr Val Ala Gly Leu Leu Met Val His Ala Ala Val Val Gly Leu Pro
180 185 190

Gly Ser Ala Val Thr Thr Ala Gly Leu Ala Thr Leu Ala Gly Gly Pro
195 200 205

Ala Gly Ser Thr Ala Pro Leu Thr Ala Ala His Ala Ala Val Gly Ala
210 215 220

Ala Ala Pro Gly Leu Pro Leu Leu Gly Ser Thr Ser Ala Gly Ala Leu
225 230 235 240

Gly Thr Ala Pro Leu Leu Ala His Gly Val His Ala Leu Thr Gly Gly
245 250 255

Thr Gly Gly Gly Leu Ala Leu Ala Leu Ala Ala Gly Leu Ala Leu
260 265 270

Ser Gly Ala Gly Ala Leu Ala Leu Thr Leu Ala Ser Thr Thr Gly Ile
275 280 285

Ala Ala Thr Ala Ser Thr Ala Pro Gly Ala Ala Val Pro Ala Ile Ser
290 295 300

Thr Ala His Gly Pro Ala Leu Ile Gly Ala Gly Leu Leu Gly Gly Ala
305 310 315 320

Thr Ser Thr Ala Gly Ile Ile Ala Gly Val Ala Thr Ala Pro Ser Leu
325 330 335

Ala Thr Ser Ala Ile Val Ser Gly Ala Thr Leu Leu Ala Ala Thr Gly
340 345 350

Ile Gly Ala Thr Thr Gly Ile Ala Ala Ser Val Gly Leu Ala His
355 360 365

Leu Pro
370

<210> 26
<211> 10
<212> PRT
<213> Neisseria meningitidis (group B)

<220>
<221> misc_feature
<222> (5)..(5)
<223> Xaa can be any naturally occurring amino acid
<400> 26

Ala Asp Ile Gly Xaa Gly Leu Ala Asp Ala
1 5 10

<210> 27
<211> 10
<212> PRT
<213> Neisseria meningitidis (group B)

<220>
<221> misc_feature
<222> (3)..(3)
<223> Xaa can be any naturally occurring amino acid

<400> 27

Ile Gly Xaa Gly Leu Ala Asp Ala Leu Thr
1 5 10

<210> 28
<211> 10
<212> PRT
<213> Neisseria meningitidis (group B)

<400> 28

Ser Leu Asn Thr Gly Lys Leu Lys Asn Asp
1 5 10

<210> 29
<211> 17
<212> PRT
<213> Neisseria meningitidis (group B)

<220>
<221> misc_feature
<222> (12)..(12)
<223> Xaa can be any naturally occurring amino acid

<400> 29

Ser Leu Asn Thr Gly Lys Leu Lys Asn Asp Lys Xaa Ser Arg Phe Asp
1 5 10 15

Phe.

<210> 30
<211> 9
<212> PRT
<213> Neisseria meningitidis (group B)

<220>
<221> misc_feature
<222> (6)..(6)
<223> Xaa can be any naturally occurring amino acid

<400> 30

Ser Gly Glu Phe Gln Xaa Tyr Lys Gln

1

5

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<210> 31
<211> 8
<212> PRT
<213> Neisseria meningitidis (group B)

<220>
<221> misc_feature
<222> (6)..(6)
<223> Xaa can be any naturally occurring amino acid

<400> 31

Ile Glu His Leu Lys Xaa Pro Glu
1 5

<210> 32
<211> 10
<212> PRT
<213> Neisseria meningitidis (group B)

<220>
<221> misc_feature
<222> (10)..(10)
<223> Xaa can be any naturally occurring amino acid

<400> 32

Gly Gly Gly Val Ala Ala Asp Ile Gly Xaa
1 5 10

<210> 33
<211> 9
<212> PRT
<213> Neisseria meningitidis (group B)

<400> 33

Ser Gly Glu Phe Gln Ile Tyr Lys Gln
1 5

<210> 34
<211> 10
<212> PRT
<213> Neisseria meningitidis (group B)

<400> 34

His Ser Ala Val Val Ala Leu Gln Ile Glu
1 5 10
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<210> 35
<211> 10
<212> PRT
<213> Neisseria meningitidis (group B)

<400> 35

Glu Lys Ile Asn Asn Pro Asp Lys Ile Asp
1 5 10

<210> 36
<211> 10
<212> PRT
<213> Neisseria meningitidis (group B)

<400> 36

Ser Leu Ile Asn Gln Arg Ser Phe Leu Val
1 5 10

<210> 37
<211> 10
<212> PRT
<213> Neisseria meningitidis (group B)

<400> 37

Ser Gly Leu Gly Gly Glu His Thr Ala Phe
1 5 10

<210> 38
<211> 10
<212> PRT
<213> Neisseria meningitidis (group B)

<400> 38

Gly Glu His Thr Ala Phe Asn Gln Leu Pro
1 5 10

<210> 39
<211> 11
<212> PRT
<213> Neisseria meningitidis (group B)

<400> 39

Ser Phe Leu Val Ser Gly Leu Gly Gly Glu His
1 . 5 10

<210> 40
<211> 34

<212> PRT
<213> Neisseria meningitidis (group B)

<400> 40

Glu Lys Ile Asn Asn Pro Asp Lys Ile Asp Ser Leu Ile Asn Gln Arg
1 5 10 15

Ser Phe Leu Val Ser Gly Leu Gly Gly Glu His Thr Ala Phe Asn Gln
20 25 30

Leu Pro

<210> 41
<211> 10
<212> PRT
<213> Neisseria meningitidis (group B)

<400> 41

Gly Lys Ala Glu Tyr His Gly Lys Ala Phe
1 5 10

<210> 42
<211> 10
<212> PRT
<213> Neisseria meningitidis (group B)

<400> 42

Tyr His Gly Lys Ala Phe Ser Ser Asp Asp
1 5 10

<210> 43
<211> 14
<212> PRT
<213> Neisseria meningitidis (group B)

<400> 43

Gly Lys Ala Glu Tyr His Gly Lys Ala Phe Ser Ser Asp Asp
1 5 10

<210> 44
<211> 10
<212> PRT
<213> Neisseria meningitidis (group B)

<400> 44

Ile Glu His Leu Lys Thr Pro Glu Gln Asn

1

5

10

<210> 45
<211> 10
<212> PRT
<213> Neisseria meningitidis (group B)
<400> 45

Lys Thr Pro Glu Gln Asn Val Glu Leu Ala
1 5 10

<210> 46
<211> 14
<212> PRT
<213> Neisseria meningitidis (group B)
<400> 46

Ile Glu His Leu Lys Thr Pro Glu Gln Asn Val Glu Leu Ala
1 5 10

<210> 47
<211> 10
<212> PRT
<213> Neisseria meningitidis (group B)
<400> 47

Ala Glu Leu Lys Ala Asp Glu Lys Ser His
1 5 10

<210> 48
<211> 10
<212> PRT
<213> Neisseria meningitidis (group B)
<400> 48

Ala Val Ile Leu Gly Asp Thr Arg Tyr Gly
1 5 10

<210> 49
<211> 20
<212> PRT
<213> Neisseria meningitidis (group B)
<400> 49

Ala Glu Leu Lys Ala Asp Glu Lys Ser His Ala Val Ile Leu Gly Asp
1 5 10 15

Thr Arg Tyr Gly
20

<210> 50
<211> 10
<212> PRT
<213> Neisseria meningitidis (group B)

<400> 50

Glu Glu Lys Gly Thr Tyr His Leu Ala Leu
1 5 10

<210> 51
<211> 14
<212> PRT
<213> Neisseria meningitidis (group B)

<400> 51

Lys Ile Asn Asn Pro Asp Lys Ile Asp Ser Leu Ile Asn Gln
1 5 10

<210> 52
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35 40 45

Xaa Ala Gln Gly Ala Glu Lys Thr Xaa Xaa Xaa Gly Asp Ser Leu Asn
50 55 60

Thr Gly Lys Leu Lys Asn Asp Lys Xaa Ser Arg Phe Asp Phe Xaa Xaa
65 70 75 80

Xaa Ile Xaa Val Asp Gly Xaa Xaa Ile Thr Leu Xaa Ser Gly Glu Phe
85 90 95

Gln Xaa Tyr Lys Gln Xaa His Ser Ala Xaa Xaa Ala Leu Gln Xaa Glu
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Xaa Arg Xaa
115 120 125

Phe Xaa Xaa Xaa Xaa Xaa Xaa Gly Glu His Thr Xaa Phe Xaa Xaa Leu
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Pro Xaa Xaa Xaa Ala Xaa Tyr Xaa Gly Xaa Ala Phe Xaa Ser Asp Asp
145 150 155 160

Xaa Xaa Gly Xaa Leu Xaa Tyr Xaa Ile Asp Phe Xaa Xaa Lys Gln Gly
165 170 175

Xaa Gly Xaa Ile Glu His Leu Lys Xaa Pro Glu Xaa Asn Val Xaa Leu
180 185 190

Ala Xaa Xaa Xaa Xaa Lys Xaa Asp Glu Lys Xaa His Ala Val Ile Xaa
195 200 205

Gly Xaa Xaa Xaa Tyr Xaa Xaa Xaa Glu Lys Gly Xaa Tyr Xaa Leu Xaa
210 215 220

Xaa Xaa Gly Xaa Xaa Ala Gln Glu Xaa Ala Gly Xaa Ala Xaa Val Xaa
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35 40 45

Xaa Ala Gln Gly Ala Glu Lys Thr Xaa Xaa Xaa Gly Asp Ser Leu Asn
50 55 60

Thr Gly Lys Leu Lys Asn Asp Lys Xaa Ser Arg Phe Asp Phe Xaa Xaa
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Xaa Ile Xaa Val Asp Gly Gln Xaa Ile Thr Leu Xaa Ser Gly Glu Phe
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Gln Ile Tyr Lys Gln Xaa His Ser Ala Val Val Ala Leu Gln Ile Glu
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Lys Ile Asn Asn Pro Asp Lys Ile Asp Ser Leu Ile Asn Gln Arg Ser
115 120 125

Phe Leu Val Ser Gly Leu Gly Gly Glu His Thr Ala Phe Asn Gln Leu
130 135 140

Pro Xaa Gly Lys Ala Glu Tyr His Gly Lys Ala Phe Ser Ser Asp Asp
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Xaa Xaa Gly Xaa Leu Xaa Tyr Xaa Ile Asp Phe Xaa Xaa Lys Gln Gly
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Ala Xaa Ala Glu Leu Lys Ala Asp Glu Lys Ser His Ala Val Ile Leu
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Gly Asp Thr Arg Tyr Gly Xaa Glu Glu Lys Gly Thr Tyr His Leu Ala
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Ser Leu Thr Leu Xaa Xaa Ser Xaa Xaa Xaa Asn Xaa Xaa Leu Xaa Leu
35            40            45

Xaa Ala Gln Gly Ala Glu Lys Thr Tyr Gly Asn Gly Asp Ser Leu Asn
50            55            60
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Thr Gly Lys Leu Lys Asn Asp Lys Val Ser Arg Phe Asp Phe Ile Arg
65 70 75 80

Gln Ile Glu Val Asp Gly Xaa Leu Ile Thr Leu Glu Ser Gly Glu Phe
85 90 95

Gln Val Tyr Lys Gln Ser His Ser Ala Leu Thr Ala Leu Gln Thr Glu
100 105 110

Gln Xaa Gln Asp Xaa Glu Xaa Ser Xaa Lys Met Val Ala Lys Arg Xaa
115 120 125

Phe Xaa Ile Gly Asp Ile Ala Gly Glu His Thr Ser Phe Asp Lys Leu
130 135 140

Pro Lys Xaa Xaa Xaa Ala Thr Tyr Arg Gly Thr Ala Phe Gly Ser Asp
145 150 155 160

Asp Ala Gly Gly Lys Leu Thr Tyr Thr Ile Asp Phe Ala Ala Lys Gln
165 170 175

Gly His Gly Lys Ile Glu His Leu Lys Ser Pro Glu Leu Asn Val Xaa
180 185 190

Leu Ala Xaa Xaa Tyr Ile Lys Pro Asp Glu Lys Xaa His Ala Val Ile
195 200 205

Ser Gly Ser Val Leu Tyr Asn Gln Asp Glu Lys Gly Ser Tyr Ser Leu
210 215 220

Gly Ile Phe Gly Xaa Xaa Ala Gln Glu Val Ala Gly Ser Ala Glu Val
225 230 235 240

Glu Thr Ala Asn Gly Ile His His Ile Gly Leu Ala Ala Lys Gln
245 250 255